

SUMMARY FOR FE-29-02
SELECTED AND POSSIBLE CONTRIBUTING FACTORS

SELECTED FACTORS

Railroad: Norfolk Southern Corporation

Location: Enola, Pennsylvania

Region: 2

Month: November

Date: Nov. 18, 2002

Time: 11:40 a.m., EST

Data for Fatally Injured Employee(s)

Carman

49 years old

28 years of service

Last rules training: N/A

Last safety training: Oct. 29, 2002

Last physical: June 15, 1998

Data for All Employees (Craft, Positions, Activity)

Craft: Maintenance of Equipment

Positions:

Carman

Mechanical Supervisor

Ten Other Carman on site

Maintenance-of-Way Foreman

Paving Contractor (Central Penn Pavers)

Truck Driver (Central Penn Pavers)

Another employee of the paving company

Senior General Foreman

General Foreman

Activity: Attempting to remove a loading ramp's defective hydraulic pump for repair.

SUMMARY FOR FE-29-02 CONTINUED

SELECTED FACTORS CONTINUED

EVENT

A Carman was fatally injured when he was crushed by an elevated ramp which fell on him as he was attempting to remove the ramp's defective hydraulic pump for repair.

POSSIBLE CONTRIBUTING FACTORS

PCF No. 1

The Carman was assigned to release the hydraulic pressure to lower the ramp, and then lift the steel grating to disconnect the hydraulic hose and remove the four bolts that held the pump to the inside of the ramp frame. Investigators concluded that the pump could then have been removed from the top without going under the ramp. ***They concluded that the Carman had failed to position himself clear of the portable ramp when he released the hydraulic pressure, resulting in the fatal incident.***

PCF No. 2

Investigators observed that a decal on the side of the ramp contained instructions for its use, advising workers to see the owner's manual for operating and maintenance instructions. However, the railroad was unable to provide an owner's manual when requested. The Carman needed instructions on the safest way to perform this potentially dangerous task.

REPORT: FE-29-2002

RAILROAD: Norfolk Southern Corporation (NS)

LOCATION: Enola, Pennsylvania

DATE & TIME: Nov. 18, 2002; 11:40 a.m., EST

EVENT¹: A Carman was fatally injured when he was crushed by an elevated ramp which fell on him as he was attempting to remove the ramp's defective hydraulic pump for repair.

EMPLOYEE:

Craft:	Maintenance of Equipment (MOE)
Activity:	Repairing a gondola rail car
Occupation:	Carman
Age:	49 years old
Length of Service:	28 years
Last Rules Training:	N/A
Last Safety Training:	Oct. 29, 2002
Last Physical:	June 15, 1998

CIRCUMSTANCES PRIOR TO THE ACCIDENT

Subsequent to being off work in excess of 48 hours, a Carman reported for duty at 6 a.m., Nov. 18, 2002 at the NS Car Shop in Enola, Pennsylvania. After the 6 a.m. daily safety meeting, the Carman went to work on the No. 7 Track, adjacent to the Enola Car Shop Office. His assignment that day was to work in the coil steel gondola program. He was in the process of performing a single car test on Gondola Car No. CR 627347, which was standing on Track No. 7, when he took a break for lunch. After lunch, the Carman met with his Mechanical Supervisor and discussed making repairs to a portable ramp used to load and unload material from trucks and highway trailers. At about 10:50 a.m., the Carman and his Supervisor left the lunch room and walked the portable ramp. The ramp was located about 360 feet south of the Car Shop Office between the No. 7 Track and No. 9 Track in a material storage area at the end of a parking

¹ "Event" is defined as "occurrence that immediately precedes and directly results in the fatality." Possible contributing factors are identified in the following report and attached summary.

lot. At the loading ramp, the Supervisor instructed the Carman to remove the hydraulic pump by lifting the grating from above the pump, then unbolting the inside of the ramp and removing it from the top. The removal process involved unfastening four cap bolts and disconnecting a hydraulic line to free the pump. The hydraulic line that was connected to the pump ran to two hydraulic cylinders that raised and lowered the ramp. The Supervisor told the Carman that the removal job was not urgent, but that he would like to have it done before the end of the day so he could drop the pump off for repairs that evening. He then told the Carman to finish testing the air on a car, CR 726347, which was standing on the No. 7 Track located about 190 feet north of the pump. At about 11:07 a.m., the two men departed with ten Carman returning to work on the car on the No. 7 Track, and the Supervisor headed toward the parking lot at the south end of the car shop office. On his way to the car shop, the Supervisor stopped to talk with a Maintenance-of-Way Foreman who was working with a Paving Contractor (Central Penn Pavers), paving the parking area south of the car shop office.

The accident area was located about 110 feet south of where the parking lot pavement ended. The ramp was sitting on level ground covered with limestone chips. Central Penn Pavers was operating paving equipment and hauling blacktop about 200 feet north of the ramp, while paving the Car Shop Office parking lot. No one observed the Carman's actions or what occurred after he left the Supervisor at 11:07 a.m.

The weather was clear and dry, and the temperature was 50° F.

THE ACCIDENT

At 11:30 a.m., a Truck Driver for Central Penn Pavers, who was delivering asphalt, entered the Senior General Foreman's office and said to call 911 because someone was trapped under a piece of equipment. The Senior General Foreman called 911 immediately.

Before going to the office, the Truck Driver had contacted another employee of the paving company and told him to check on the man under the ramp. After he went to the ramp, the paving company employee ran back toward the car shop and encountered an NS General Foreman and told him that there was a man trapped under the ramp who appeared to be dead. The Foreman ran to the shop, got a fork lift, and drove to the scene. Using the fork lift, he raised the ramp off the Carman at 11:32 a.m. Another paving company employee at the scene felt the Carman's pulse and replied there was none. At 11:42 a.m., the East Pennsboro EMS arrived, and the East Pennsboro Police arrived at 11:50 a.m. The Cumberland County Coroner arrived at 12:30 p.m. and pronounced the Carman dead at the scene. The body was removed at 12:52 p.m.

According to the General Foreman, when he arrived at the ramp, the Carman was lying with the bottom half of his body outside of the ramp and the upper half beneath the ramp. He was positioned near the middle of the ramp, under the side facing west, pinned between the ground and the bottom side of the ramp. When the ramp was raised, he was still wearing his hard hat and glasses; and the wrench he used to disconnect the hydraulic line was still in his hand.

POST-ACCIDENT INVESTIGATION

An initial FRA investigation of the accident scene was conducted on Nov. 18, 2002 between 1:15 p.m. and 3:00 p.m. An inspection of the loading ramp revealed that three of the cap bolts supporting the ramp had been removed, and it was being supported by the remaining one bolt. The hydraulic line between the ramp and support cylinders was disconnected at the pump, and hydraulic fluid was spread over the area under the ramp. The ramp was at the bottom of its travel with 3 ½ inches of clearance between the ground and the side of the ramp at the spot where the Carman was lying.

A subsequent inspection and investigation on Nov. 19, 2002, revealed the following: the material unloading ramp was last used on Friday, Nov. 15, 2002 to unload material from a trailer. During the unloading process, the Mechanical Supervisor and Carman using the ramp noticed that the hydraulic pump would not raise the end of the ramp, therefore, they had to use a fork lift to raise it onto the trailer bed. It was the Monday following this event that the Mechanical Supervisor told the Carman to remove the pump for repairs. On Tuesday, NS officials conducted an inspection of the ramp with FRA officials observing. Using the fork lift, they were able to raise the elevated end to its uppermost limit of 50 inches. A measurement was taken at the location where the Carman was pinned. It measured 15 ½ inches. When the ramp was lowered with the fork lift, it returned to its position at the time of the accident, with 3 ½ inches of clearance at the spot the Carman was lying.

The portable loading ramp was manufactured by Equipment Company of America located in Hialeah, Florida. The ramp was constructed of aluminum with a steel grating on the top and had a capacity of 15,000 pounds. It weighed 3,789 pounds and measured 35 feet, 10 inches long and 5 feet, 10 ½ inches wide. A decal on the side of the ramp contained instructions for its use. It also advised workers to see the owner's manual for operating and maintenance instructions. The railroad could not provide the owner's manual when FRA investigators asked to see it.

The job the Carman was assigned to perform comprised releasing hydraulic pressure to lower the ramp and then lifting the steel grating to disconnect the hydraulic hose and remove the four bolts that held the pump to the inside of the ramp frame. The pump then could be removed from the top without going under the ramp.

Investigators concluded that the Carman had failed to position himself clear of the portable ramp when he released the hydraulic pressure, resulting in the fatal incident. At the time of this report, the Harrisburg Office of OSHA also conducted an investigation with consistent findings. The Cumberland County Coroner's Office performed toxicological testing, and the results were negative.

APPLICABLE RULES

The investigators determined that the Norfolk Southern Corporation's Safety and General Conduct Rules, effective April 01, 1999, did not include a safety rule to cover the work being performed at the time of the accident.